UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,050	02/26/2004	Yoshihiro Ogawa	02910.000121.	3302

5514 7590 01/09/2007

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
DOTE, JANIS L	
ART UNIT	PAPER NUMBER
1756	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/786,050	OGAWA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-6 and 9-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6 and 9-11* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner acknowledges the amendment to claim 1 and the cancellation of claim 8 set forth in the amendment filed on Nov. 6, 2006. Claims 1, 4-6, and 9-12 are pending.

2. The indicated allowability of the subject matter recited in now-cancelled claim 8, which is now recited in instant claim 1, and claim 11, is withdrawn in view of the newly discovered reference to US 5,294,682 (Fukuda) and on further review of US 7,029,813 B2 (Mikuriya). Rejections based on the newly cited reference follow.

3. The examiner notes that the term "average circularity" is defined at page 48, lines 1-13, as the "value determined by dividing the sum of measured circularity values of total particles having equivalent circle diameters of 3 μm to 400 μm, by the number of total particles," where the circularity is defined as L_o/L where "L_o represents a circumferential length of a circle having an area identical to that of a projected particle image, and L represents a circumferential length of the projected particle image processed at an image processing resolution of 512 X 512 (0.3 μm X 0.3 μm pixel)."

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. US 7,029,813 B2 (Mikuriya) has an effective filing date of Nov. 21, 2003, which is prior to the instant specification filing date of Feb. 26, 2004. The inventive entity of Mikuriya differs from that of the instant specification. Accordingly, Mikuriya qualifies as prior art under 35 U.S.C. 102(e).

Applicants have not perfected their claim foreign priority under 35 U.S.C. 119 to Japanese patent application No. 2003-203863. The verified English-language translation of the priority document filed on Jul. 20, 2005, does not provide an adequate written description of the subject matter recited in instant claim 1 as required under 35 U.S.C. 112, first paragraph. The translation does not disclose that the Ti chelate compounds represented by formulae (I) to (IV) can be "hydrates thereof" as recited in instant claim 1.

6. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,029,813 B2 (Mikuriya) in view of US 4,847,432 (Tanikawa'432), as evidenced by US 6,379,855 B1 (Hayashi).

Mikuriya discloses magnetic toner particles comprising magnetic particles, a release agent, a polar resin, a charge control agent, and an inorganic fine powder. Col. 6, lines 31-42; exemplary compound 4 at col. 12; polar-resin production example 1 at col. 43; and toner production example 14 at col. 50. The toner particles are obtained by dispersing in an aqueous medium a polymerizable monomer composition that contains at least a polymerizable monomer, the magnetic particles, the polar resin, the release agent, the charge control agent and a polymerization initiator, granulating the polymerizable monomer composition, and polymerizing the polymerizable monomer. The polar resin comprises a polyester unit polymerized in the presence of the titanium chelate catalyst, exemplary compound 4. The polar resin has an acid value of 12 mg KOH/g. Exemplary compound 4 meets the titanium chelate compound compositional limitations of formula (III) recited in instant claim 1. Mikuriya further teaches that the titanium chelate catalyst can equally be that of formula (I), such as exemplary compounds 1 and 2, which both meet the compositional limitations of formula (I) recited in instant claims 1 and 10. See col. 9, lines 36-55; and exemplary compounds 1 and 2 at col. 12. Mikuriya further teaches that the

acid value of the polar polyester resin ranges from 3 mg KOH/g to 35 mg KOH/g. Col. 6, lines 37-38.

Mikuriya does not exemplify a polar resin comprising a polyester unit comprising an oxyalkylene ether of a novolak phenolic resin as an alcohol component as recited in instant claim 1. However, Mikuriya teaches that polyester unit can be obtained from oxyalkylene ethers of novolak phenolic resins as the polyhydric alcohol component. Col. 19, lines 10-11.

Fukuda teaches that an oxyalkylene ether of a novolak phenolic resin can be used as the polyol, i.e., polyhydric alcohol, component in the formation of a polyester resin. According to Fukuda, a toner that comprises a binder resin comprising a polyester resin obtained by reacting a polycarboxylic acid and such a polyol component has improved fixability at low temperature and resistance to offset. Col. 1, lines 45-61; col. 3, lines 38-40; and for example, resins A and B at col. 11, line 63, to col. 12, line 18, and in Tables 1 and 2. Resins A and B have acid values of 3 and 4.1 mg KOH/g, respectively, which are within the teachings of Mikuriya. Fukuda further teaches that the polyester resin may have an acid value of 0.5 to 30 mg KOH/g, which overlaps the acid value range of 3 to 35 mg KOH/g taught by Mikuriya. Col. 6, lines 9-12.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Mikuriya and Fukuda, to use an oxyalkylene ether of a novolak phenolic resin as the alcohol component in the formation of the polar polyester resin with the titanium chelate catalyst taught by Mikuriya, such that the resultant polyester resin has an acid value as taught by Mikuriya, and to use the resultant polyester resin as the polar resin in the magnetic toner taught by Mikuriya. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has improved low temperature fixing characteristics and resistance to offset as taught by Fukuda.

Mikuriya does not exemplify a magnetic toner comprising the magnetic particles as recited in instant claims. However, Mikuriya does not limit the type of magnetic particles used. Col. 21, line 36.

Tanikawa'432 discloses a magnetic toner that comprises toner particles that comprise particular magnetic iron oxide particles, a binder resin, and a particular azo containing charge control agent. The magnetic toner also comprises hydrophobic silica particles. Example 1 at col. 14; and Table 2 at col. 17, example 1. The magnetic toner has a saturation magnetization of 30.3 emu/g and a residual (i.e., remanent)

magnetization of 5.9 emu/g in a magnetic field of 10 KOe. Table 2, example 1. The saturation magnetization of 30.3 emu/g, i.e., 30.3 Am^2/g, together with the residual magnetization of 5.9 emu/g, i.e., 5.9 Am^2/g, in a magnetic field of 10 KOe, i.e., 795.8 kA/m, meet the magnetization limitations recited in instant claim 1. See Hayashi, col. 7, lines 30-35, equating 1 emu/g to 1 Am^2/g, and a magnetic field of 795.8 kA/m to 10 KOe. According to Tanikawa'432, the magnetic toner particles can be obtained by a polymerization method in which the predetermined toner materials are "mixed in a monomer which should constitute the binder resin to form a suspension, followed by polymerization, to obtain the toner." Col. 12, lines 9-12. The method disclosed by Tanikawa'432 appears to be similar to the method disclosed by Mikuriya. Tanikawa'432 further teaches that the magnetic toner provides "stable toner images without the influence from changes in the environment such as temperature change, humidity change." The magnetic toner can also provide stable images even in continuous use for a long period of time. Col. 2, lines 5-12, and Table 1 at col. 15, example 1.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Mikuriya and the teachings of Tanikawa'432, to use the Tanikawa'432 magnetic particles and the Tanikawa'432 charge

control agent as the magnetic particles and the charge control agent in the toner rendered obvious over the combined teachings of Mikuriya and Fukuda, such that the resultant magnetic toner has the saturation and remanent magnetizations as recited in instant claim 1. That person would have had a reasonable expectation of successfully obtaining a magnetic toner having the advantages taught by Tanikawa'432.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikuriya combined with Fukuda and Tanikawa'432, as evidenced by Hayashi, as applied to claim 1 above, further combined with US 6,218,065 B1 (Tanikawa'065).

The combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 6 above, which is incorporated herein by reference.

Tanikawa'432 does not exemplify a magnetic toner comprising magnetic iron oxide particles comprising 0.1 to 2.0% by weight of an "Si element" as recited in instant claim 4.

Tanikawa'065 teaches that it is most preferred that the magnetic iron oxide used in magnetic toners contain a "different element" selected from the group consisting of magnesium, aluminum, silicon, phosphorus, and zirconium. Col. 48,

lines 16-19. Tanikawa'065 teaches that the "different element" may be: introduced into the crystal lattice of the iron oxide; incorporated as an oxide thereof in the iron oxide; or present as an oxide or a hydroxide on the surface of the iron oxide particles. Col. 48, lines 20-23. According to Tanikawa'065, such a magnetic iron oxide containing such a different element exhibits a good affinity with and very good dispersibility in the toner binder resin, which can be a polyester binder resin. Col. 46, lines 29-31, and col. 48, lines 32-34. Tanikawa'065 further teaches that the "different element" is preferably present at 0.2 to 5 wt% based on the "iron element." If the amount is below 0.05 wt%, the "addition effect of the different element is scarce, thus failing to achieve good dispersibility and uniformity of chargeability." If the amount is greater than 10 wt%, the "charge liberation is liable to be excessive to cause insufficient chargeability, thus resulting in a lower image density and an increased fog." Col. 49, lines 1-8. Thus, the prior art reference recognizes that the amount of the "different element" in the magnetic iron oxide particles is a result-effective variable. The variation of a result-effective variable is presumably within the skill of the ordinary worker in the art. Tanikawa'065 exemplifies magnetic iron oxide particles comprising Si in an amount of 2 wt% or 0.5 wt% based

on the "iron element" of the particles. See Table 3 at col. 59, magnetic material (i) and (ii). The amounts of 2 wt% and 0.5 wt% are within the range of 0.1 to 2 wt% recited in instant claim 4.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanikawa'065, to incorporate the element Si in the Tanikawa'432 magnetic iron oxide particles as taught by Tanikawa'065, such that the resultant magnetic iron oxide particles comprise Si in an amount, such as 0.5 or 2 wt% based on the iron content, that is within the amount recited in instant claim 4, and to use the resultant magnetic iron oxide particles in the magnetic toner rendered obvious over the combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has improved dispersibility of the magnetic iron oxide particles in the binder resin, and improved uniformity of chargeability as taught by Tanikawa'065.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikuriya combined with Fukuda and Tanikawa'432, as evidenced by Hayashi, as applied to claim 1 above, further combined with US 6,197,470 B1 (Tamura).

The combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 6 above, which is incorporated herein by reference.

Mikuriya does not exemplify a magnetic toner comprising a hydrophobic silica as recited in instant claim 5. As discussed in paragraph 6 above, the Mikuriya magnetic toner in example 14 comprises an inorganic fine powder. The inorganic fine powder comprises hydrophobic silica particles.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. Col. 22, lines 35-56, hydrophobic fine silica powder A; and Table 1 at col. 25, treated silica A. The Tamura hydrophobic silica powder A has particular hydrophobic properties. Col. 2, lines 34-49; and Table 2 at col. 25, treated silica A. According to Tamura, when the Tamura hydrophobic silica powder A is externally added to a toner, the toner can keep smeared images from occurring even in an environment of high temperature and high humidity. The toner has good transfer efficiency and does not cause melt abrasion of the photosensitive drum. Col. 2, lines 10-22.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A

as an externally added hydrophobic silica in the magnetic toner rendered obvious over the combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikuriya combined with Fukuda and Tanikawa'432, as evidenced by Hayashi, as applied to claim 1 above, further combined with Tanikawa'065.

The combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 6 above, which is incorporated herein by reference.

Tanikawa'432 does not disclose the use of a metal aromatic hydroxycarboxylate as recited in instant claim 9. However, Tanikawa'432 teaches that charge controlling agents known in the art may be also employed in its magnetic toner, "if they do not exert deleterious influences." Tanikawa'432, col. 10, lines 23-26.

Tanikawa'065 teaches organic zirconium complexes of aromatic hydroxycarboxylic acids as toner charge controlling agents. Col. 3, lines 15-25; col. 6, line 60, to col. 7, line 35; and col. 7, line 45, to col. 8, line 27. The Tanikawa'065 zirconium complexes meet the "metal aromatic hydroxycarboxylate" limitation recited in instant claim 9. According to Tanikawa'065, toners comprising said charge controlling compounds have negative triboelectric chargeability, and stably provide high quality images "even when used in a low humidity environment or in a high humidity environment and not causing image defects with lapse of time." The toner is "less liable to result in deteriorated toner even when used in a cartridge-type developing device of either a replenishment type or a use-up type." The toner also exhibits excellent developing performance and provides "developed images faithful to electrostatic images even in a long term of continuous image formation." Col. 2, lines 1-18. These properties appear to be the same properties sought by Tanikawa'432. As discussed in paragraph 6 above, Tanikawa'432 teaches that its magnetic toner provides "stable toner images without the influence from changes in the environment such as temperature change, humidity change"; and that it provides stable images even in continuous use for a long period of time.

It would have been obvious for a person having ordinary skill in the art to use the Tanikawa'065 charge control agent zirconium complex of an aromatic hydroxycarboxylic acid in the magnetic toner rendered obvious over the combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a negative triboelectric chargeable magnetic toner having the advantages disclosed by Tanikawa'065 and Tanikawa'432.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikuriya combined with Fukuda and Tanikawa'432, as evidenced by Hayashi, as applied to claim 1 above, further combined with additional teachings in Mikuriya.

The combined teachings of Mikuriya, Fukuda, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 6 above, which is incorporated herein by reference.

As discussed in paragraph 6 above, the polar resin exemplified in example 14 of Mikuriya comprises a polyester unit polymerized in the presence of the titanium chelate catalyst, exemplary compound 4. Mikuriya teaches that the titanium chelate catalyst can equally be that of formula (I), such as

exemplary compounds 1 and 2, which both meet the compositional limitations of formula (I) recited in instant claim 1, from which claim 11 depends. See col. 9, lines 36-55; and exemplary compounds 1 and 2 at col. 12. Mikuriya exemplary compounds 1 and 2 also meet the compositional limitations of Ti chelate compounds (1) and (2), respectively, recited in instant claim 11. According to Mikuriya, a toner comprising its polar resin and made by the polymerization process taught by Mikuriya provides high quality images and has a "quick rise of charging that stable charge quantity can be held in any environment." Col. 6, lines 21-25.

Mikuriya does not exemplify making a polar resin using the combination of exemplary compounds (1) and (2). However, it teaches that any of its titanium chelate compounds may be used in combination of two or more and be used as the catalyst. "This also affords a favorable form of the present invention." Col. 12, lines 4-7. Mikuriya exemplifies making a polar polyester resin with three titanium chelate compounds, exemplary compounds (1), (3), and (4). See Polar-resin production example 8 at col. 44.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Mikuriya, to use the combination of Mikuriya titanium chelate exemplary

compounds (1) and (2) as the catalyst in making the polar polyester resin rendered obvious over the combined teachings of Mikuriya and Fukuda that has an acid value as taught by Mikuriya, and to use the resultant polar polyester resin as the polar resin in the magnetic toner rendered obvious over the combined teachings of Mikuriya, Fukuda, and Tanikawa'432. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has the properties taught by Fukuda and Tanikawa'432 and that provides high quality images and that has stable charging as taught by Mikuriya.

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an

invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1 and 10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of Mikuriya in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi.

Reference claim 2, which depends from reference claim 1, recites toner particles comprising a colorant, a release agent, a polar resin, and an inorganic fine powder. The polar resin comprises a polyester unit polymerized in the presence of a titanium chelate catalyst that meets the Ti chelate catalyst limitations recited in instant claims 1 and 10. The polar resin has an acid value of 3 mg KOH/g to 35 mg KOH/g. See formulas (I) to (IV) in reference claim 2. The toner particles are obtained by carrying out granulation in an aqueous medium. Reference claim 9, which depends from reference claim 1, recites that the toner particles are obtained by dispersing in an aqueous medium a polymerizable monomer composition that contains at least a polymerizable monomer, the colorant, the polar resin, the release agent, a charge control agent and a polymerization

initiator, granulating the polymerizable monomer composition, and polymerizing the polymerizable monomer.

The reference claims of Mikuriya do not recite that the polyester resin comprises a compound having a structure containing an oxyalkylene ether of a novolak phenolic resin as an alcohol component as recited in instant claim 1.

The use of an oxyalkylene ether of a novolak phenolic resin as the alcohol component in the formation of a polyester resin is well known in the toner art. Fukuda teaches that an oxyalkylene ether of a novolak phenolic resin can be used as the polyol, i.e., polyhydric alcohol, component in the formation of a polyester resin. According to Fukuda, a toner that comprises a binder resin comprising a polyester resin obtained by reacting a polycarboxylic acid and such a polyol component has improved fixability at low temperature and resistance to offset. Col. 1, lines 45-61; col. 3, lines 38-40; and for example, resins A and B at col. 11, line 63, to col. 12, line 18, and in Tables 1 and 2. Resins A and B have acid values of 3 and 4.1 mg KOH/g, respectively, which are within the acid value required in reference claim 2 of Mikuriya. Fukuda further teaches that the polyester resin may have an acid value of 0.5 to 30 mg KOH/g, which overlaps the acid value range of 3 to 35 mg KOH/g recited in reference claim 2 of Mikuriya. Col. 6, lines 9-12.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Mikuriya and the teachings of Fukuda, to use an oxyalkylene ether of a novolak phenolic resin as the alcohol component in the formation of the polar polyester resin with the titanium chelate catalyst recited in the claims of Mikuriya, where the resultant polyester resin has an acid value as required by the claims of Mikuriya, and to use the resultant polyester resin as the polar resin in the toner recited in the claims of Mikuriya. That person would have had a reasonable expectation of successfully obtaining a toner that has improved low temperature fixing characteristics and resistance to offset as taught by Fukuda.

The reference claims of Mikuriya do not recite that the toner can be a magnetic toner as recited in the instant claims. However, it is well known in the toner art that magnetic substances can be used as a toner colorant. See Tamura, col. 18, lines 56-64.

Tanikawa'432 discloses a magnetic toner that comprises toner particles that comprise particular magnetic iron oxide particles, a binder resin, a particular charge control agent, and hydrophobic silica particles. The magnetic toner has a saturation magnetization and a residual (i.e., remanent)

magnetization that meet the magnetization limitations recited in instant claim 1. The discussions of Tanikawa'432 and Hayashi in paragraph 6 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Mikuriya and the teachings of Tanikawa'432, to use the Tanikawa'432 magnetic particles and the Tanikawa'432 charge control agent as the colorant and the charge control agent in the toner rendered obvious over the subject matter recited in the claims of Mikuriya combined with the teachings of Fukuda, such that the resultant magnetic toner has the saturation and remanent magnetizations as recited in instant claim 1. That person would have had a reasonable expectation of successfully obtaining a magnetic toner having the advantages taught by Tanikawa'432.

13. Claim 4 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of Mikuriya in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of Tanikawa'065.

The subject matter recited in the claims of Mikuriya in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as

evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

Tanikawa'432 does not exemplify a magnetic toner comprising magnetic iron oxide particles comprising 0.1 to 2.0% by weight of an "Si element" as recited in instant claim 4.

Tanikawa'065 teaches the use of a magnetic iron oxide particles comprising Si in magnetic toners. The discussion of Tanikawa'065 in paragraph 7 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanikawa'065, to incorporate the element Si in the Tanikawa'432 magnetic iron oxide particles as taught by Tanikawa'065, such that the resultant magnetic iron oxide particles comprise Si in an amount, such as 0.5 or 2 wt% based on the iron content, that is within the amount recited in instant claim 4, and to use the resultant magnetic iron oxide particles in the magnetic toner rendered obvious over subject matter recited in the claims of Mikuriya combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has improved dispersibility of the magnetic

iron oxide particles in the binder resin, and that has improved uniformity of chargeability as taught by Tanikawa'065.

14. Claim 5 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of Mikuriya in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of additional teachings in Tamura.

The subject matter recited in the claims of Mikuriya in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

The claims in Mikuriya do not recite and Tanikawa'432 does not disclose a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. The discussion of Tamura in paragraph 8 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as an externally added hydrophobic silica in the magnetic toner rendered obvious over subject matter recited in the claims of

Mikuriya combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

15. Claim 9 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of Mikuriya in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of Tanikawa'065.

The subject matter recited in the claims of Mikuriya in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

The claims in Mikuriya do not recite and Tanikawa'432 does not disclose the use of a metal aromatic hydroxycarboxylate as recited in instant claim 9. However, Tanikawa'432 teaches that charge controlling agents known in the art may be also employed

in its magnetic toner, "if they do not exert deleterious influences." Tanikawa'432, col. 10, lines 23-26.

Tanikawa'065 teaches organic zirconium complexes of aromatic hydroxycarboxylic acids as toner charge controlling agents. The discussions of Tanikawa'065 and Tanikawa'432 in paragraph 9 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tanikawa'065 charge control agent zirconium complex of an aromatic hydroxycarboxylic acid in the magnetic toner rendered obvious over subject matter recited in the claims of Mikuriya combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a negative triboelectric chargeable magnetic toner having the advantages disclosed by Tanikawa'065 and Tanikawa'432.

16. The following rejections are provisional obviousness-type double patenting rejections because the conflicting claims in the cited pending US application have not in fact been patented.

17. Claims 1 and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of US Application 10/900,177 (Application'177) in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi.

Reference claim 1 recites a toner comprising toner particles that comprise a colorant, a binder resin, and inorganic fine particles. The binder resin is a resin having a polyester unit synthesized by using a titanium chelate catalyst that meets the Ti chelate catalyst limitations recited in instant claim 1. See formulas (I) to (III) in reference claim 1.

Reference claim 6, which depends from reference claim 1, requires that the toner particles have an average circularity of from 0.930 to 0.990 as measured by a flow type particle image analyzer. The range of 0.930 to 0.990 overlaps the average circularity range of "0.930 or more and less than 0.970" recited in instant claim 6. According to Application'177, the average circularity is defined by an equation that is identical to the equation used in determining the average circularity recited in instant claim 6. See paragraph 3 supra; and Application'177, page 70, line 5, to page 71, line 15. Application'177 states that average circularity is determined by the flow-type particle

image analyzer FPIA-2100, which appears to be the same analyzer used in the instant specification to determine the average circularity recited in instant claim 6. Application'177, page 70, lines 10-12; and the instant application, page 48, lines 20-26, and page 49, lines 12-26.

Application'177 does not disclose that the average circularity is for particles having equivalent circle diameters of 3 μm to 400 μm as recited in instant claim 6. However, as discussed supra, Application'177 definition of average circularity is identical to the definition of the average circularity recited in instant claim 6. In addition, the Application'177 average circularity is determined by the flow-type particle image analyzer FPIA-2100, which appears to be the same analyzer used in the instant specification to determine the average circularity recited in instant claim 6. Thus, it is reasonable to conclude that the Application'177 average circularity is determined in the same manner as the average circularity recited in instant claim 6. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The reference claims of Application'177 do not recite that the polyester resin comprises a compound having a structure

containing an oxyalkylene ether of a novolak phenolic resin as an alcohol component as recited in instant claim 1.

The use of oxyalkylene ethers of a novolak phenolic resin as the alcohol component in the formation of a polyester resin is well known in the toner art. Fukuda teaches that an oxyalkylene ether of a novolak phenolic resin can be used as the polyol, i.e., polyhydric alcohol, component in the formation of a polyester resin. The discussion of Fukuda in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Application'177 and the teachings of Fukuda, to use an oxyalkylene ether of a novolak phenolic resin as the alcohol component in the formation of the polar polyester resin with the titanium chelate catalyst recited in the claims of Application'177, and to use the resultant polyester resin as the polyester resin in toner recited in the claims of Application'177. That person would have had a reasonable expectation of successfully obtaining a toner that has improved low temperature fixing characteristics and resistance to offset as taught by Fukuda.

The reference claims of Application'177 do not recite that the toner can be a magnetic toner as recited in the instant

claims. However, it is well known in the toner art that magnetic substances can be used as a toner colorant. See Tamura, col. 18, lines 56-64.

Tanikawa'432 discloses a magnetic toner that comprises toner particles that comprise particular magnetic iron oxide particles, a binder resin, and a particular charge control agent, and hydrophobic silica particles. The magnetic toner has a saturation magnetization and a remanent magnetization that meet the magnetization limitations recited in instant claim 1. The discussions of Tanikawa'432 and Hayashi in paragraph 6 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Application'177 and the teachings of Tanikawa'432, to use the Tanikawa'432 magnetic particles and the Tanikawa'432 charge control agent as the colorant and the charge control agent in the toner rendered obvious over the subject matter recited in the claims of Application'177 combined with the teachings of Fukuda, such that the resultant magnetic toner has the saturation and remanent magnetizations as recited in instant claim 1. That person would have had a reasonable expectation of successfully obtaining a magnetic toner having the advantages taught by Tanikawa'432.

18. Claim 4 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Application'177 in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of Tanikawa'065.

The subject matter recited in the claims of Application'177 in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 17 above, which is incorporated herein by reference.

Tanikawa'432 does not exemplify a magnetic toner comprising magnetic iron oxide particles comprising 0.1 to 2.0% by weight of an "Si element" as recited in instant claim 4.

Tanikawa'065 teaches the use of magnetic iron oxide particles comprising Si in magnetic toners. The discussion of Tanikawa'065 in paragraph 7 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanikawa'065, to incorporate the element Si in the Tanikawa'432 magnetic iron oxide particles as taught by Tanikawa'065, such that the resultant magnetic iron oxide particles comprise Si in an amount, such as 0.5 or 2 wt% based on the iron content, that is

within the amount recited in instant claim 4, and to use the resultant magnetic iron oxide particles in the magnetic toner rendered obvious over subject matter recited in the claims of Application'177 combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has improved dispersibility of the magnetic iron oxide particles in the binder resin, and that has improved uniformity of chargeability as taught by Tanikawa'065.

19. Claim 5 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Application'177 in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of additional teachings in Tamura.

The subject matter recited in the claims of Application'177 in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Application'177 do not recite and Tanikawa'432 does not disclose a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. The discussion of Tamura in paragraph 8 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as an externally added hydrophobic silica in the magnetic toner rendered obvious over subject matter recited in the claims of Application'177 combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

20. Claim 9 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Application'177 in view of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi, further in view of Tanikawa'065.

The subject matter recited in the claims of Application'177 in view of the teachings in Fukuda, Tamura, and Tanikawa'432, as

evidenced by Hayashi, renders obvious a magnetic toner as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Application'177 do not recite and Tanikawa'432 does not disclose the use of a metal aromatic hydroxycarboxylate as recited in instant claim 9. However, Tanikawa'432 teaches that charge controlling agents known in the art may be also employed in its magnetic toner, "if they do not exert deleterious influences." Tanikawa'432, col. 10, lines 23-26.

Tanikawa'065 teaches organic zirconium complexes of aromatic hydroxycarboxylic acids as toner charge controlling agents. The discussions of Tanikawa'065 and Tanikawa'432 in paragraph 9 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tanikawa'065 charge control agent zirconium complex of an aromatic hydroxycarboxylic acid in the magnetic toner rendered obvious over subject matter recited in the claims of Application'177 combined with the teachings of Fukuda, Tamura, and Tanikawa'432, as evidenced by Hayashi. That person would have had a reasonable expectation of successfully obtaining a negative triboelectric chargeable magnetic toner

having the advantages disclosed by Tanikawa'065 and Tanikawa'432.

21. Applicants' arguments filed on Nov. 6, 2006, as applicable to the rejections in paragraphs 12-15 and 17-20 above have been fully considered but are moot in view of the new grounds of rejection over the reference Fukuda, set forth in paragraphs 12-15 and 17-20 above.

22. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Neither Mikuriya, alone or combined with the cited prior art, nor the claims in Mikuriya or the claims in Application'177, alone or combined with the other cited prior art, render obvious a magnetic toner comprising a binder resin comprising a polyester component polymerized by using a Ti chelate compound and the combination of the aluminum compound of formula (13) and a monoazo iron compound, as recited in instant claim 12.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD
Jan. 3, 2007

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700